In The Claims:

1. (Withdrawn) A system for performing a white balance procedure for an electronic camera, comprising:

a light diffusion filter that acts as an illuminance integrator of broad light acceptance angle in photographic and scientific applications, said light filter being adapted to be attached over the lens of a digital camera-type device to permit adjustment of the camera controls either manually or automatically to generate an approximately 18% neutral density full-frame reference image of uniform consistency that will provide an accurate method for achieving optimum 18% exposure levels with incident light and digital gray/white balance with incident or reflective light, in camera or post processed, in view of the incident or reflective light conditions that exist at the time the picture is taken, and to enable later production of a computer-generated image with minimal colorcast and requiring minimal subsequent manual color adjustment.

2. (Withdrawn) The system of claim 1 wherein said light diffusion filter is combined with other color-altering filters enables the creation of a digital white balance with a desired colorcast inside the camera thereby enabling first-generation images possessing white balance that has been corrected at point of capture with the preferred colorcast.

3. (Withdrawn) The system of claim 1 wherein images created with said light diffusion filter also function as a key gray/white balance standard reference to create and preserve a near identical white balance throughout all stages of a digital imaging process.

4. (Withdrawn) The system of claim 1 wherein said light diffusion filter enables a referencing of an entire archive to a single constant neutral density reference, thereby enabling unlimited repeatable consistent and accurate color reproduction in a color managed environment.

5. (Withdrawn) The system of claim 1 wherein a consistency possible in manufacturing of said light diffusion filter enables creating unrelated archives containing digital image files of various color casts derived from multiple sources to be referenced to a same identical gray/white balance standard reference.

6. (Withdrawn) The system of claim 1 wherein said light diffusion filter functions either as a lens cap or is incorporated into a body of said electronic camera to be inserted automatically into a path of light entering through a lens assembly, thereby enabling diffused white balance data to be captured automatically for every exposure, or selected manually to document lighting conditions relevant to a specific sequence of images.

7. (Withdrawn) The system of claim 1 wherein significant elements of said light diffusion filter described above are incorporated as part of an independent window in a camera body associated with an electronic camera device that captures image data using an image sensor device to enable a white balance analysis based on light samples that have been collected, diffused and averaged to create a single uniform reference image that accurately represents a sum of all available light contributing to a photographic image, with each light source represented in correct proportions.

8. (Withdrawn) The system of claim 1 wherein said digital camera-type device documents color characteristics of input light through said light diffusion filter by storing a uniform neutral averaged-summation of said input light as a reference image onto an electronic storage device.

9. (Withdrawn) The system of claim 8 wherein said reference image provides an 18% neutral-density full-frame reference image of a uniform consistency for achieving optimum 18% exposure levels and digital white balance for said captured electronic images.

10. (Withdrawn) The system of claim 9 wherein said reference image is directly utilized by said digital camera-type device to perform a white balance procedure before capturing and storing electronic images, said reference image being alternately utilized in a post-processing environment to perform said white balance procedure after said electronic images have been initially captured by said digital camera-type device.

11. (Previously Presented) A system for performing electronic imaging procedures, comprising:

a diffusion filter configured to receive input light and responsively generate diffused output light; and

an electronic camera that includes an image sensor for capturing a reference image from said diffused output light through said diffusion filter, said reference image providing a uniform neutral averaged-summation of said input light for calculating color correction values to perform a white balance procedure for accurately representing captured electronic images.

12. (Previously Presented) The system of claim 11 wherein said electronic camera documents color characteristics of said input light by storing said uniform neutral averaged-summation of said input light as said reference image onto an electronic storage device.

13. (Previously Presented) The system of claim 11 wherein said reference image provides an 18% neutral-density full-frame reference image of a uniform consistency for achieving optimum 18% exposure levels and digital white balance for said captured electronic images.

14. (Previously Presented) The system of claim 11 wherein said reference image is directly utilized by said electronic camera to perform said white balance procedure before capturing and storing said captured electronic images, said reference image being alternately utilized in a post-processing environment to perform said white balance procedure after said captured electronic images have been initially captured by said electronic camera without performing said white balance procedure.

15. (Previously Presented) The system of claim 11 wherein said diffusion filter is implemented for detachably mounting over a lens of said electronic camera, said diffusion filter being alternately implemented integrally with said electronic camera for automatic or manual positioning in front of said sensor device, said diffusion filter being further alternately implemented in a separate imaging window that is associated with an independent image capture device.

16. (Previously Presented) The system of claim 11 wherein said diffusion filter functions as an illuminance integrator when said image sensor captures said reference image, said diffusion filter having a broad light-acceptance angle of approximately 180 degrees.

17. (Previously Presented) The system of claim 11 wherein said diffusion filter captures said reference image to document lighting conditions that exist when said captured electronic captured images are captured and stored by said electronic camera, said lighting conditions including incident light documented with said image sensor and said diffusion filter facing one or more light sources, said lighting conditions alternately including reflective light documented with said image sensor and said diffusion filter facing one or more photographic subjects.

18. (Previously Presented) The system of claim 11 wherein said diffusion filter is utilized for performing said white balance operation in medical applications and scientific applications to enable accurately utilizing photographic techniques for detecting color shifts before human vision is able to perceive said color shifts, said medical applications including early detections of said color shifts to permit accelerated diagnoses of corresponding medical conditions.

19. (Previously Presented) The system of claim 11 wherein said electronic camera is alternately implemented as a digital still camera, an video camera, a scanner device, an electronic imaging device, and a computer device.

20. (Previously Presented) The system of claim 11 wherein said diffusion filter includes one or more color-altering filters for performing said white balance procedure with desired color balance characteristics, said one or more color-altering filters being selectable to implement said diffusion filter as a color-neutral device, said one or more color-altering filters alternately being selectable to implement said diffusion filter to have one or more selectable colorcasts.

21. (Previously Presented) The system of claim 11 wherein said reference image functions as a white-balance standard reference for preserving identical white-balance characteristics throughout multiples stages of a digital imaging-processing procedure.

22. (Previously Presented) The system of claim 11 wherein said reference image is utilized to reference an entire image archive to a single constant neutral-density reference, said reference image thereby enabling consistent and accurate color reproduction for said entire image archive, said reference image being also used to reference multiple unrelated image archives to a single white-balance standard, said multiple unrelated image archives containing image files of various colorcasts derived from multiple imaging sources

23. (Previously Presented) The system of claim 11 wherein said diffusion filter is utilized to create said reference image with said input light formed from light samples that are collected, diffused and averaged to create a single uniform reference-image that accurately represents a sum of said light samples with each of said light samples being represented with a correct relative proportion in said reference image.

24. (Previously Presented) The system of claim 11 wherein said diffusion filter is used with reflective light to perform said white balance procedure, said diffusion filter being initially attached in front of said image sensor which is pointed towards a selected representative photographic subject, said electronic camera then capturing said reference image which is subsequently selected to perform said white balance procedure for said electronic camera, said diffusion device finally being removed to permit capturing and storing said captured electronic images.

25. (Previously Presented) The system of claim 11 wherein said diffusion filter is implemented as a relatively flat and lightweight disk having a disk diameter approximately equal to a lens diameter of a lens of said electronic camera, said diffusion filter being a passive device without electronic components, said diffusion filter being attachable to said electronic camera in an unobtrusive manner to enable a convenient and accurate assessment of existing white balance characteristics due to specific lighting conditions at a capture location of said captured electronic images.

26. (Previously Presented) The system of claim 11 wherein said diffusion filter is implemented to pass a same or similar amount of incident light as is reflected by a neutral photographic gray card selected to represent an idealized average subject that is half-way between a white level and a black level, said idealized average subject being assumed to reflect 18 percent of said incident light, to thereby permit a direct adjustment of a camera aperture setting for said electronic camera for a given corresponding photographic subject.

27. (Previously Presented) The system of claim 11 wherein said diffusion filter is positioned adjacent a lens of said electronic camera to provide said input light to said sensor device through said lens, said electronic camera then capturing said reference image onto a digital data storage device within said electronic camera, said diffusion filter providing a selectable amount of said input light to activate light sensitive cells in said image sensor whereby an exposure adjustment of exposure controls of said electronic camera is manually or automatically set, said image sensor then capturing said reference image to document on said digital data storage device said selectable amount of said input light and white balance characteristics corresponding to lighting conditions that produce said input light.

28. (Previously Presented) The system of claim 11 wherein a system user initially attaches said diffusion filter in front of said image sensor to capture said reference image through said diffusion filter, said electronic camera storing said reference image into a local memory device, said reference image being captured from reflective light with said image sensor pointed at a particular photographic subject, said reference image alternately being captured from incident light with said image sensor being pointed at one or more light sources for said particular photographic subject, said system user removing said diffusion filter from said electronic camera after said reference image has been captured, said system user then instructing said electronic camera to enter a custom white-balance mode, said system user selecting said reference image as a custom white-balance reference, said electronic camera analyzing color characteristics of said reference image, and calculating corresponding white-balance color correction values, said electronic camera performing said white balance procedure by utilizing said white-balance correction values, said system user then utilizing said electronic camera in a white-balanced condition for capturing and storing one or more of said captured electronic images, said electronic camera capturing a new reference image, and performing a new corresponding white balance operation whenever lighting conditions change

29. (Previously Presented) The system of claim 11 wherein said diffusion filter is fabricated in a lightweight, non-fragile, and inexpensive manner from substantially flat and translucent disks of plastic-like material.

30. (Withdrawn) The system of claim 11 wherein said diffusion filter is designed without mounting threads in order to eliminate crossing or damaging said mounting threads while connecting said diffusion filter in front of said image sensor of said electronic camera, said diffusion filter instead utilizing three or more raised bumps on an attachment ring to enable a friction fit on a camera lens of said electronic camera.

31. (Previously Presented) The system of claim 11 wherein said diffusion filter is provided with a flat prismatic disk of translucent image-blocking material resembling plastic or glass which functions to admit approximately 180 degrees of said input light which is also diffused by said flat prismatic disk.

32. (Previously Presented) The system of claim 11 wherein said diffusion filter is provided with a diffusion disc of translucent image-blocking plastic or glass to transmit approximately 18% of said input light impinging thereon, said diffusion filter being supplemented with one or more color correcting filters that are calibrated to adjust said diffusion filter to a balanced white point.

33. (Previously Presented) The system of claim 11 wherein said diffusion filter enables capturing said reference image as a full-frame neutral-density image that accurately summarizes existing lighting conditions at a point of capture for said captured electronic images, color balance characteristics of said reference image then being utilized to identify exact color correction values that are required to compensate for said existing lighting conditions to thereby achieve an accurate white balance for said captured electronic images.

34. (Previously Presented) The system of claim 11 wherein said diffusion filter includes a diffusion plate that initially receives said input light with a substantially-flat first face, said diffusion plate also including a prism array of prism-like projections that are arranged on an opposing second face of said diffusion plate, individual components of said input light each being separately refracted, dispersed, and diffused by prismatic elements of said prism array to create uniformly diffused light that accurately represents an averaged summation of all of said individual components of said input light in correct respective proportions.

35. (Previously Presented) The system of claim 34 wherein said diffusion filter includes a color compensator with one or more color filtration devices for altering one or more color components of said diffused light to produce corresponding filtered light that has desired color balance characteristics, said color compensator being selectable to allow said diffusion filter to be implemented as a completely color-neutral device that passes said input light without any color alterations, said color compensator alternately being selectable to intentionally add a desired colorcast to said input light that is passed through said diffusion filter.

36. (Previously Presented) The system of claim 35 wherein said diffusion filter includes a translucent filter to attenuate said filtered light to produce said diffused output light, said translucent filter being selectable to ensure that said diffused output light is approximately 18% of said input light, said translucent filter also operating to further diffuse said filtered light to produce said diffused output light as said uniform neutral averaged-summation of all of said individual components of said input light.

37. (Previously Presented) The system of claim 11 wherein said white balance procedure determines a white balance condition for said captured electronic images by capturing said reference image through said diffusion filter to document on a full frame, neutral-gray-density image a combined averaged colorcast created by an imbalance of red-green-blue components present in all light components of said input light captured within 180 degrees of a front plane of said image sensor, said combined averaged colorcast representing respective proportions of red, green, and blue channels of said image sensor according to existing light conditions when said reference image is captured.

38. (Previously Presented) The system of claim 11 wherein capturing said reference image with said diffusion filter enables a simultaneous control over both an exposure condition of said image sensor and a white balance condition of said image sensor based upon current lighting conditions when said reference image is captured.

39. (Previously Presented) The system of claim 11 wherein a computer device with an image processing software program performs a post-processing color correction procedure upon said captured electronic images by selecting said reference image, calculating color correction values from a colorcast represented by said reference image, and then applying said color correction values to one or more of said captured electronic images that require said post-processing color correction procedure.

40. (Previously Presented) The system of claim 11 wherein electronic camera utilizes said diffusion filter to capture said reference image that is then utilized as a colorcast standard for creating a custom white balance for performing said white balance procedure upon any image data that is captured in a same or similar lighting condition as said reference image.

41. (Previously Presented) A method for performing electronic imaging procedures, comprising the steps of:

utilizing a diffusion filter to receive input light and responsively generate diffused output light; and

capturing a reference image from said diffused output light through said diffusion filter by utilizing an image sensor of an electronic camera, said reference image providing a uniform neutral averaged-summation of said input light for calculating color correction values to perform a white balance procedure for accurately representing captured electronic images.

42. (Previously Presented) The method of claim 41 wherein said electronic camera documents color characteristics of said input light by storing said uniform neutral averaged-summation of said input light as said reference image onto an electronic storage device.

43. (Previously Presented) The method of claim 41 wherein said reference image provides an 18% neutral-density full-frame reference image of a uniform consistency for achieving optimum 18% exposure levels and digital white balance for said captured electronic images.

44. (Previously Presented) The method of claim 41 wherein said reference image is directly utilized by said electronic camera to perform said white balance procedure before capturing and storing said captured electronic images, said reference image being alternately utilized in a post-processing environment to perform said white balance procedure after said captured electronic images have been initially captured by said electronic camera without performing said white balance procedure.

45. (Previously Presented) The method of claim 41 wherein said diffusion filter is implemented for detachably mounting over a lens of said electronic camera, said diffusion filter being alternately implemented integrally with said electronic camera for automatic or manual positioning in front of said sensor device, said diffusion filter being further alternately implemented in a separate imaging window that is associated with an independent image capture device.

46. (Previously Presented) The method of claim 41 wherein said diffusion filter functions as an illuminance integrator when said image sensor captures said reference image, said diffusion filter having a broad light-acceptance angle of approximately 180 degrees.

47. (Previously Presented) The method of claim 41 wherein said diffusion filter captures said reference image to document lighting conditions that exist when said captured electronic captured images are captured and stored by said electronic camera, said lighting conditions including incident light documented with said image sensor and said diffusion filter facing one or more light sources, said lighting conditions alternately including reflective light documented with said image sensor and said diffusion filter facing one or more photographic subjects.

48. (Previously Presented) The method of claim 41 wherein said diffusion filter is utilized for performing said white balance operation in medical applications and scientific applications to enable accurately utilizing photographic techniques for detecting color shifts before human vision is able to perceive said color shifts, said medical applications including early detections of said color shifts to permit accelerated diagnoses of corresponding medical conditions.

49. (Previously Presented) The method of claim 41 wherein said electronic camera is alternately implemented as a digital still camera, an video camera, a scanner device, an electronic imaging device, and a computer device.

50. (Previously Presented) The method of claim 41 wherein said diffusion filter includes one or more color-altering filters for performing said white balance procedure with desired color balance characteristics, said one or more color-altering filters being selectable to implement said diffusion filter as a color-neutral device, said one or more color-altering filters alternately being selectable to implement said diffusion filter to have one or more selectable colorcasts.

51. (Previously Presented) The method of claim 41 wherein said reference image functions as a white-balance standard reference for preserving identical white-balance characteristics throughout multiples stages of a digital imaging-processing procedure.

52. (Previously Presented) The method of claim 41 wherein said reference image is utilized to reference an entire image archive to a single constant neutral-density reference, said reference image thereby enabling consistent and accurate color reproduction for said entire image archive, said reference image being also used to reference multiple unrelated image archives to a single white-balance standard, said multiple unrelated image archives containing image files of various colorcasts derived from multiple imaging sources

53. (Previously Presented) The method of claim 41 wherein said diffusion filter is utilized to create said reference image with said input light formed from light samples that are collected, diffused and averaged to create a single uniform reference-image that accurately represents a sum of said light samples with each of said light samples being represented with a correct relative proportion in said reference image.

54. (Previously Presented) The method of claim 41 wherein said diffusion filter is used with reflective light to perform said white balance procedure, said diffusion filter being initially attached in front of said image sensor which is pointed towards a selected representative photographic subject, said electronic camera then capturing said reference image which is subsequently selected to perform said white balance procedure for said electronic camera, said diffusion device finally being removed to permit capturing and storing said captured electronic images.

55. (Previously Presented) The method of claim 41 wherein said diffusion filter is implemented as a relatively flat and lightweight disk having a disk diameter approximately equal to a lens diameter of a lens of said electronic camera, said diffusion filter being a passive device without electronic components, said diffusion filter being attachable to said electronic camera in an unobtrusive manner to enable a convenient and accurate assessment of existing white balance characteristics due to specific lighting conditions at a capture location of said captured electronic images.

56. (Previously Presented) The method of claim 41 wherein said diffusion filter is implemented to pass a same or similar amount of incident light as is reflected by a neutral photographic gray card selected to represent an idealized average subject that is half-way between a white level and a black level, said idealized average subject being assumed to reflect 18 percent of said incident light, to thereby permit a direct adjustment of a camera aperture setting for said electronic camera for a given corresponding photographic subject.

57. (Previously Presented) The method of claim 41 wherein said diffusion filter is positioned adjacent a lens of said electronic camera to provide said input light to said sensor device through said lens, said electronic camera then capturing said reference image onto a digital data storage device within said electronic camera, said diffusion filter providing a selectable amount of said input light to activate light sensitive cells in said image sensor whereby an exposure adjustment of exposure controls of said electronic camera is manually or automatically set, said image sensor then capturing said reference image to document on said digital data storage device said selectable amount of said input light and white balance characteristics corresponding to lighting conditions that produce said input light.

58. (Previously Presented) The method of claim 41 wherein a system user initially attaches said diffusion filter in front of said image sensor to capture said reference image through said diffusion filter, said electronic camera storing said reference image into a local memory device, said reference image being captured from reflective light with said image sensor pointed at a particular photographic subject, said reference image alternately being captured from incident light with said image sensor being pointed at one or more light sources for said particular photographic subject, said system user removing said diffusion filter from said electronic camera after said reference image has been captured, said system user then instructing said electronic camera to enter a custom white-balance mode, said system user selecting said reference image as a custom white-balance reference, said electronic camera analyzing color characteristics of said reference image, and calculating corresponding white-balance color correction values, said electronic camera performing said white balance procedure by utilizing said white-balance correction values, said system user then utilizing said electronic camera in a white-balanced condition for capturing and storing one or more of said captured electronic images, said electronic camera capturing a new reference image, and performing a new corresponding white balance operation whenever lighting conditions change

59. (Previously Presented) The method of claim 41 wherein said diffusion filter is fabricated in a lightweight, non-fragile, and inexpensive manner from substantially flat and translucent disks of plastic-like material.

60. (Withdrawn) The method of claim 41 wherein said diffusion filter is designed without mounting threads in order to eliminate crossing or damaging said mounting threads while connecting said diffusion filter in front of said image sensor of said electronic camera, said diffusion filter instead utilizing three or more raised bumps on an attachment ring to enable a friction fit on a camera lens of said electronic camera.

61. (Previously Presented) The method of claim 41 wherein said diffusion filter is provided with a flat prismatic disk of translucent image-blocking material resembling plastic or glass which functions to admit approximately 180 degrees of said input light which is also diffused by said flat prismatic disk.

62. (Previously Presented) The method of claim 41 wherein said diffusion filter is provided with a diffusion disc of translucent image-blocking plastic or glass to transmit approximately 18% of said input light impinging thereon, said diffusion filter being supplemented with one or more color correcting filters that are calibrated to adjust said diffusion filter to a balanced white point.

63. (Previously Presented) The method of claim 41 wherein said diffusion filter enables capturing said reference image as a full-frame neutral-density image that accurately summarizes existing lighting conditions at a point of capture for said captured electronic images, color balance characteristics of said reference image then being utilized to identify exact color correction values that are required to compensate for said existing lighting conditions to thereby achieve an accurate white balance for said captured electronic images.

64. (Previously Presented) The method of claim 41 wherein said diffusion filter includes a diffusion plate that initially receives said input light with a substantially-flat first face, said diffusion plate also including a prism array of prism-like projections that are arranged on an opposing second face of said diffusion plate, individual components of said input light each being separately refracted, dispersed, and diffused by prismatic elements of said prism array to create uniformly diffused light that accurately represents an averaged summation of all of said individual components of said input light in correct respective proportions.

65. (Previously Presented) The method of claim 64 wherein said diffusion filter includes a color compensator with one or more color filtration devices for altering one or more color components of said diffused light to produce corresponding filtered light that has desired color balance characteristics, said color compensator being selectable to allow said diffusion filter to be implemented as a completely color-neutral device that passes said input light without any color alterations, said color compensator alternately being selectable to intentionally add a desired colorcast to said input light that is passed through said diffusion filter.

66. (Previously Presented) The method of claim 65 wherein said diffusion filter includes a translucent filter to attenuate said filtered light to produce said diffused output light, said translucent filter being selectable to ensure that said diffused output light is approximately 18% of said input light, said translucent filter also operating to further diffuse said filtered light to produce said diffused output light as said uniform neutral averaged-summation of all of said individual components of said input light.

67. (Previously Presented) The method of claim 41 wherein said white balance procedure determines a white balance condition for said captured electronic images by capturing said reference image through said diffusion filter to document on a full frame, neutral-gray-density image a combined averaged colorcast created by an imbalance of red-green-blue components present in all light components of said input light captured within 180 degrees of a front plane of said image sensor, said combined averaged colorcast representing respective proportions of red, green, and blue channels of said image sensor according to existing light conditions when said reference image is captured.

68. (Previously Presented) The method of claim 41 wherein capturing said reference image with said diffusion filter enables a simultaneous control over both an exposure condition of said image sensor and a white balance condition of said image sensor based upon current lighting conditions when said reference image is captured.

69. (Previously Presented) The method of claim 41 wherein a computer device with an image processing software program performs a post-processing color correction procedure upon said captured electronic images by selecting said reference image, calculating color correction values from a colorcast represented by said reference image, and then applying said color correction values to one or more of said captured electronic images that require said post-processing color correction procedure.

70. (Previously Presented) The method of claim 41 wherein electronic camera utilizes said diffusion filter to capture said reference image that is then utilized as a colorcast standard for creating a custom white balance for performing said white balance procedure upon any image data that is captured in a same or similar lighting condition as said reference image.

71. (Previously Presented) A system for performing electronic imaging procedures, comprising:

means for receive input light and responsively generating diffused output light; and

means for capturing a reference image from said diffused output light through said diffusion filter, said reference image providing a uniform neutral averaged-summation of said input light for calculating color correction values to perform a white balance procedure for accurately representing captured electronic images.

72. (Previously Presented) A system for performing electronic imaging procedures, comprising:

a diffusion filter configured to receive input light and responsively generate diffused output light; and

an electronic imaging device that includes an image sensor for capturing a reference image from said diffused output light through said diffusion filter, said electronic imaging device calculating color correction values from said reference image to perform a white balance procedure for accurately representing captured electronic images.

73. (Previously Presented) A system for performing electronic imaging procedures, comprising:

a diffusion filter configured to receive input light and responsively generate diffused output light that is captured as a reference image for calculating color correction values to perform a white balance procedure for accurately representing captured electronic images, said diffusion filter including a diffusion plate for diffusing said input light with a prism array, a color compensator for altering color characteristics of said diffused output light, and a translucent filter for attenuating said input light.